**Near real-time biomonitoring of copper from an industrial complex effluent discharge site using a plant protease inhibitive assay**

ABSTRACT

In this work, a temporal monitoring work for heavy metals from an effluent discharge point in the Juru Industrial Estate was carried out using the protease extracted from garlic (Allium sativum) as the principal bioassay system. Casein-Coomassie-dye binding assay method has utilized this purpose. The periodic sampling results for one day of a location in the Juru Industrial Estate showed temporal variation of copper concentration coinciding with garlic protease inhibition with the highest concentrations of copper occurring between 12.00 and 16.00 hours of between 3 and 3.5 mg/L copper. The crude proteases extracted from Allium sativum successfully detect temporal variation of copper form this location. In conclusion, this assay method has the potential to be a rapid, sensitive, and economic inhibitive assay for the large-scale biomonitoring works for the heavy metal copper from this area.

**Keyword:** Near real-time; Protease; Inhibitive assay; Allium sativum